N.A MBUYAZI

5/25/2026

PLANNING AND RESEARCH FOR STUDENT COMMUNICATION APPLICATION

WHITE COMMUNICATIONS

3.1 Subtask 1: Gather information

A **work breakdown structure (WBS)** is a foundational project management tool that helps you organize and define the total scope of a project by breaking it down into smaller more manageable components.

Purpose of work breakdown structure:

Clarify Project Scope

It defines all the work required to complete the project.

Ensures nothing is left out (100% Rule) and avoids scope creep.

- **Improve Planning and Scheduling**

  Helps estimate time, resources, and costs for each task.

  Forms the foundation for GANTT and PERT charts.

- **Assign Responsibilities**

  Each task or work package can be assigned to a specific team member.

  Enhances accountability and collaboration.

- **Track Progress**

  Makes it easier to monitor task completion and identify delays.

  Supports performance measurement and control.

- **Facilitate Communication**

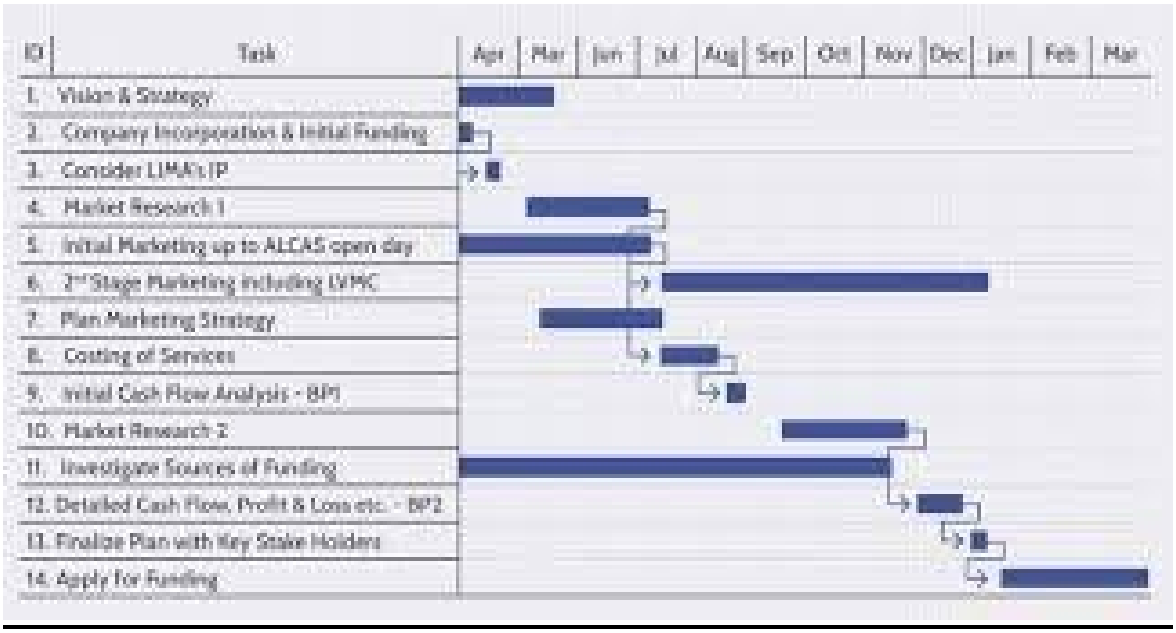
  Provides a clear visual structure that stakeholders can understand.

  Aligns everyone on deliverables and expectations.

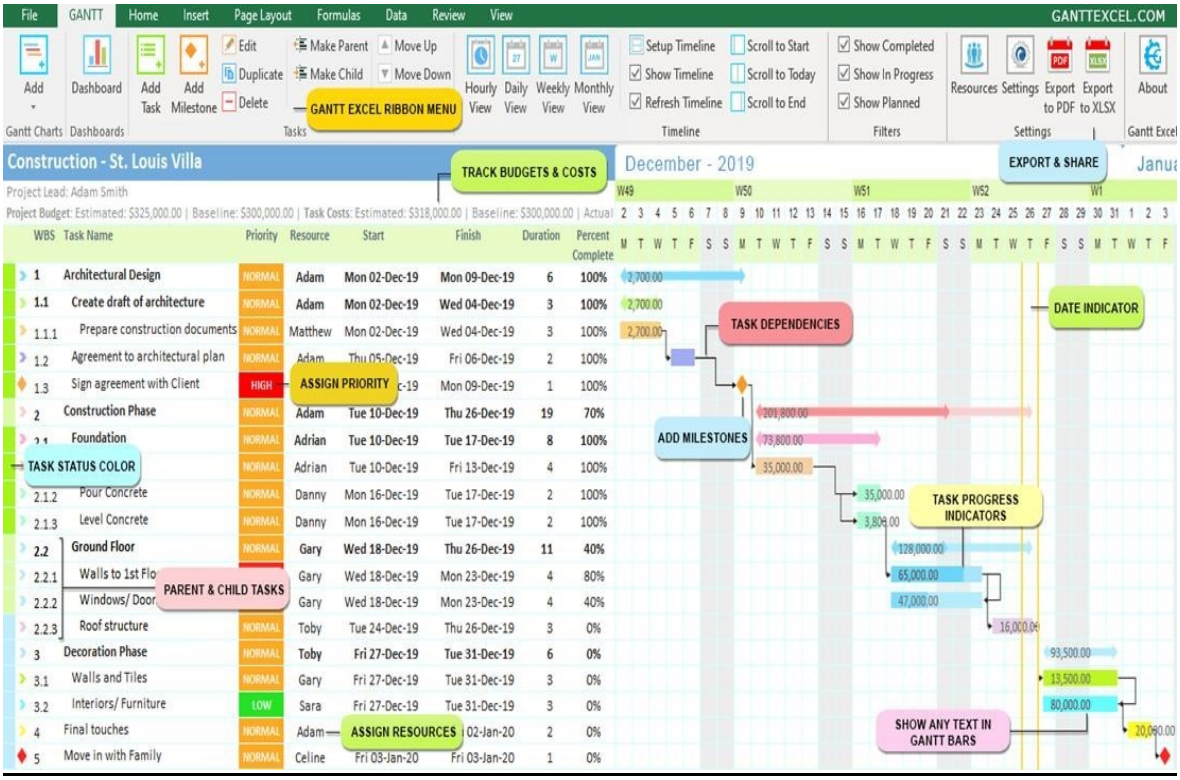
- **Identify Risks Early**

Breaking down tasks helps spot potential bottlenecks or challenges.

Example of WBS Template: Gantt Chart

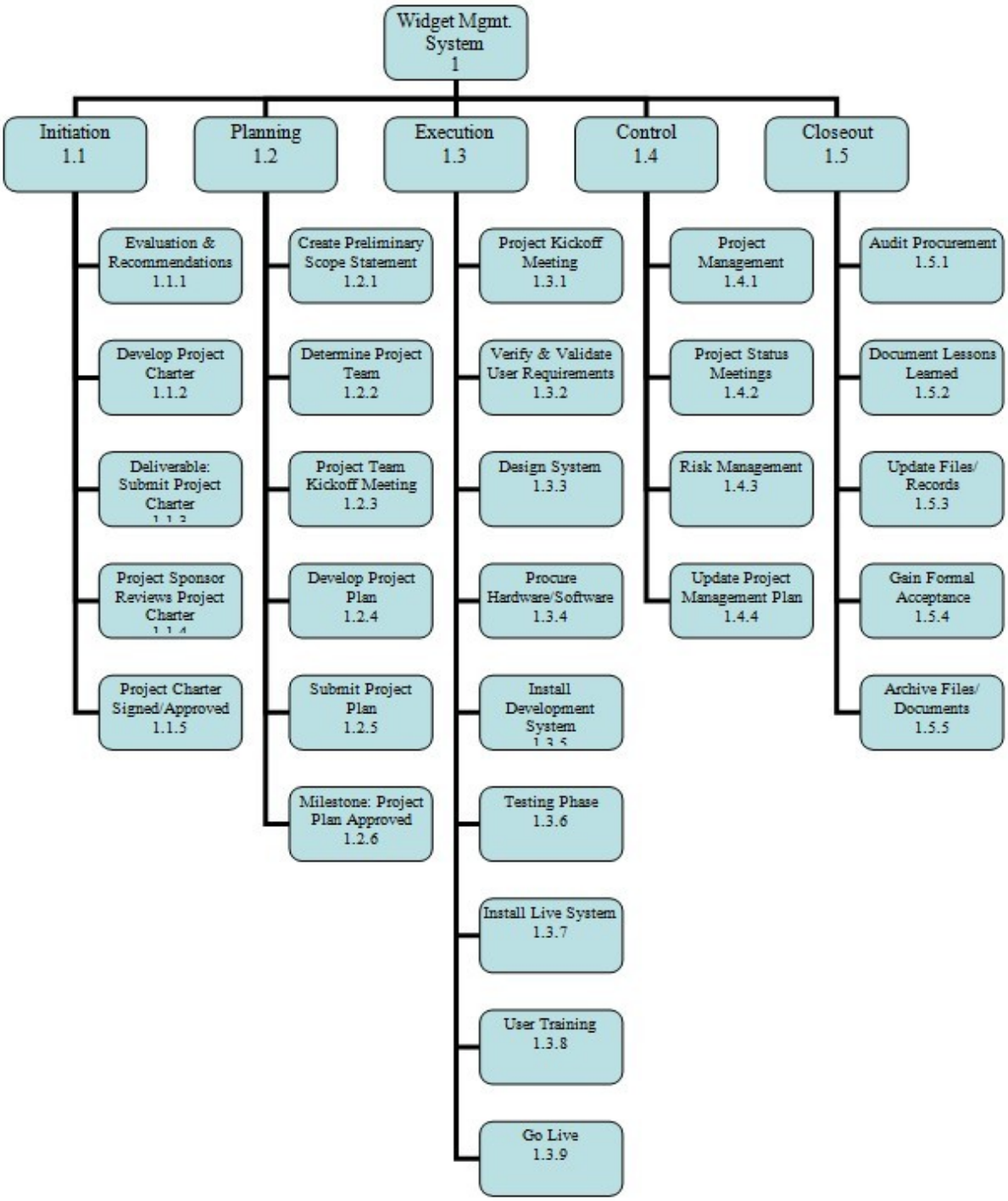


N.A MBUYAZI


GANTT EXCEL RIBBON MENU
TRACK BUDGETS & COSTS
EXPORT & SHARE
TASK STATUS COLOR
ASSIGN PRIORITY
TASK DEPENDENCIES
DATE INDICATOR
ADD MILESTONES
TASK PROGRESS INDICATORS
PARENT & CHILD TASKS
ASSIGN RESOURCES
SHOW ANY TEXT IN GANTT BARS
Construction - St. Louis Villa
December - 2019

N.A MBUYAZI

Example of WBS Template: PERT CHART



WBS Structure with cost Column

WBS Code	Task	Team Member(s)	Duration (Days)	Estimated Cost (R)
1.0	Planning & Research	Project Manager, Analyst	5	10,000
2.0	Design	Designer, Analyst	7	15,000
3.0	Development	Programmers (3)	15	45,000
4.0	Testing	Programmers, Analyst	8	15,000
5.0	Implementation	Entire Team	5	15,000
	Total		**40**	**R100,000**

What is a GANTT Chart?

 A GANTT chart is a horizontal bar chart used to visualize a project schedule. It shows tasks on the vertical axis and time intervals on the horizontal axis. Each bar represents a task's start date, duration, and end date.

How to Develop a GANTT Chart?

1. List all tasks from your Work Breakdown Structure (WBS).
2. Assign start and end dates to each task.
3. Determine dependencies (which tasks rely on others).
4. Plot tasks as bars on a timeline.
5. Add milestones to mark key events.

Relationship to WBS

- The WBS breaks the project into manageable components.
- GANTT charts use WBS tasks to schedule and track progress.
- WBS provides the structure, while the GANTT chart provides the timeline.

PERT Chart Development

N.A MBUYAZI

What is a PERT Chart?

- PERT stands for Program Evaluation Review Technique.
- It’s a network diagram that shows the sequence of tasks and their dependencies.
- Used to estimate project duration and identify the critical path.

How to Develop a PERT Chart?

1. Identify all tasks and milestones.
2. Determine dependencies between tasks.
3. Estimate time using: o Optimistic time (O) o Most likely time (M) o Pessimistic time (P)
4. Use the formula:
   \text{Expected Time} = \frac{O + 4M +
P}{6} 5. Draw nodes for milestones and
arrows for tasks.

N.A MBUYAZI

Title: Planning and Research for Student Communication Application
Student Name: Amanda Mthembu
Course: Information Technology **Date**: 24 July 2025
Institution: Elangeni College

Detailed Descriptions of Researched Elements

1. Work Breakdown Structure (WBS)

   - A WBS divides a project into smaller tasks or work packages for better planning.
   - It's usually hierarchical, meaning big tasks are broken into sub-tasks.
   - Helps organize work logically and ensures that nothing is left out.
   - A cost column can be added to show budget allocation for each sub-task.
   - WBS is essential before creating a GANTT or PERT chart.
   - Downloaded template from Project Management Docs includes task ID, description, responsibility, and time estimates.

2. GANTT Chart

   - A GANTT chart shows tasks over time using horizontal bars.
   - Each task bar indicates start and end dates, helping track progress.
   - Useful for scheduling and identifying task overlaps or dependencies.
   - Developed based on the WBS tasks—once tasks are defined, they are scheduled.
   - Downloaded a GANTT chart template from Team Gantt. It includes editable task rows, timeline bars, and milestone indicators.

3. PERT Chart

   - A PERT chart is a flow-like diagram that maps out task order and duration.
   - Useful when task timing is uncertain; uses optimistic, pessimistic, and most likely time.
   - Helps find the critical path (the longest series of dependent tasks).
   - Created after WBS to understand task relationships and flow.
   - Downloaded a template from Lucid chart showing nodes connected by arrows, with time estimations labeled.

N.A MBUYAZI

1. Project Management Docs WBS Template: https://www.projectmanagementdocs.com/template/project-planning/workbreakdownstructure
2. Stakeholder Map WBS with Costs Template: https://www.stakeholdermap.com/project-templates/WBSexcel-template.html
3. Team Gantt Chart Template: https://www.teamgantt.com/free-gantt-chart-excel-template
4. Lucid chart PERT Chart Tutorial and Templates: https://www.lucidchart.com/pages/tutorial/pert-charts

N.A MBUYAZI

SUBTASK 2:

COMMUNICATION MANAGEMENT PLAN TEMPLATE

COMMUNICATION MANAGEMENT PLAN

Planning and Research for Student Communication Application

COLLEGE CONNECTIONS

G52 UNDLONDLO ROAD

KWAMASHU

DATE: 25 MAY 2026

Project Introduction

The college has allocated a budget of R100 000.00 to develop an innovative system that aligns with institutional goals and enhances operational efficiency. With a projected timeline of 40 working days, this project will be

carried out using the Systems Development Life Cycle (SDLC) framework, encompassing the key phases of planning and research, design, development, testing, and implementation.

To ensure successful execution, a dedicated team will be assembled—including a project manager, systems analyst, designer, and three skilled programmers. The team's collaborative effort will focus on delivering a reliable and user-friendly solution within budget and on schedule, while adhering to best practices in software development and project management.

OUTLINE VIEW

Project Proposal Outline

1. **Project Introduction**

- Overview of project intent
- Budget allocation: R100 000.00
- Timeline: 40 working days
- Team composition: PM, Systems Analyst, Designer, 3 Programmers

2. **Project Objectives**

- Develop a functional and efficient digital system
- Align with college goals and operational needs
- Deliver within budget and deadline constraints

3. **Team Roles and Responsibilities**

- Project Manager: oversight, coordination, reporting
- Systems Analyst: requirements gathering, technical specs
- Designer: UI/UX layout and mockups
- Programmers: coding, integration, technical testing

4. **Systems Development Life Cycle (SDLC) Phases**

SDLC Phase	Timeline (Days)	Activities
Planning & Research	Days 1–5	Scope definition, feasibility, requirement gathering
Design	Days 6–10	UI/UX mockups, system architecture plan
SDLC Phase	**Timeline (Days)**	**Activities**
Development	Days 11–30	Coding, database setup, feature implementation

Testing	Days 31–36	Bug fixes, user testing, performance validation
Implementation	Days 37–40	Final deployment, training, documentation handover

5. **Budget Overview**

- Estimated role-based allocations
- Considerations for software/tools
- Contingency and resource management

6. **Risk Management**

- Potential delays and mitigation
- Technical challenges
- Budget constraints

7. **Success Criteria**

- Fully functional system
- User acceptance and feedback
- On-time and on-budget delivery

HIERARCHICAL STRUCTURE

hierarchical structure for your software development project, organized by levels and responsibilities, reflecting how authority and workflow are distributed:

Hierarchical Structure of the Project Team

Level 1: Project Governance

- **College Administration / Project Sponsor**

- Oversees funding and strategic goals
- Authorizes major decisions

Level 2: Project Leadership

- **Project Manager**

- Leads project planning, execution, and delivery
- Communicates progress to sponsor
- Coordinates across all SDLC phases

Level 3: Analysis & Design Team

- **Systems Analyst** o Conducts planning and research o Defines system requirements and feasibility
- **Designer**

- Creates user interface and experience mockups
- Aligns design with functional specifications

Level 4: Development Team

- **Programmer 1 – Front-End Developer**
  - o Builds client-facing features and UI functionality
- **Programmer 2 – Back-End Developer** o Implements server logic and system integration
- **Programmer 3 – Database Developer**

- Designs and manages the database structure

Level 5: Testing & Implementation

- **Lead QA (or assigned Programmer)** o Performs system testing, bug resolution, and performance checks
- **Project Manager**

- Final deployment, documentation, and user training

TABULAR VIEW

Level	WBS Code	Element Name
1	1.0	Software Development Project
2	1.1	Project Management
3	1.1.1	Assign Project Manager
3	1.1.2	Project Planning & Scheduling
3	1.1.3	Progress Reporting
2	1.2	Planning & Research Phase
3	1.2.1	Requirements Gathering
3	1.2.2	Feasibility Study

Level	WBS Code	Element Name
3	1.2.3	Stakeholder Analysis
2	1.3	Design Phase
3	1.3.1	UI/UX Design
3	1.3.2	Technical Architecture
3	1.3.3	Design Review & Approval
2	1.4	Development Phase
3	1.4.1	Front-End Development (Programmer 1)
3	1.4.2	Back-End Development (Programmer 2)
3	1.4.3	Database Setup (Programmer 3)
3	1.4.4	System Integration
2	1.5	Testing Phase
3	1.5.1	Unit Testing
3	1.5.2	Bug Tracking & Fixes
3	1.5.3	User Acceptance Testing
2	1.6	Implementation Phase
3	1.6.1	Deployment
3	1.6.2	End-User Training
3	1.6.3	Documentation & Handover

TABULAR VIEW

Here's the **Tabular View** of your Work Breakdown Structure (WBS) tailored for **Chat Talk**:

Level 1	Level 2	Level 3
1 Chat Talk Platform Project	1.1 Initiation	1.1.1 Conduct Evaluation & Recommendations 1.1.2 Develop Project Charter 1.1.3 Submit Project Charter 1.1.4 Reviews by Chat Talk Leadership 1.1.5 Charter Signed & Approved

	1.2 Planning	1.2.1 Create Preliminary Scope Statement 1.2.2 Assemble Project Team 1.2.3 Project Team Kickoff Meeting 1.2.4 Draft Comprehensive Project Plan 1.2.5 Submit Project Plan for Review 1.2.6 Milestone: Project Plan Approval
	1.3 Execution	1.3.1 Project Kickoff 1.3.2 Validate User needs 1.3.3 Design System 1.3.4 Procure Hardware/Software 1.3.5 Install Development System 1.3.6 Testing Phase 1.3.7 Launch Live Version if Chat Talk 1.3.8 Train End Users 1.3.9 Go Live
	1.4 Control	1.4.1 Project Management 1.4.2 Status Meetings 1.4.3 Risk Management 1.4.4 Update Project Management Plan
	1.5 Closeout	1.5.1 Audit Procurement 1.5.2 Document Lessons Learned 1.5.3 Update Files/Records 1.5.4 Formal Acceptance 1.5.5 Archive Files

TREE STRUCTURE VIEW

Here's a refined tree structure view of your Student Communication App project, based on the SDLC stages and roles you've been assigned:

Start

├── Planning & Research
│ ├── Define Objectives

│ ├── Recruit Team (PM, Analyst, Designer, Programmers)

│ └── Feasibility & Budget Review (R100,000)

```
│       └── Output: Go/No-Go Decision
├── Design
│   ├── System Requirements Specification (Systems Analyst)
│   ├── Interface Design (Designer)
│   └── Architecture Design (Team collaboration)
│       └── Output: Approved Design Docs
├── Development
│   ├── Backend Programming (Programmers)
│   ├── Frontend Development (Designer + Programmers)
│   └── Feature Integration (Team)
│       └── Output: Prototype Ready
├── Testing
│   ├── Functional Testing (Programmers + Analyst)
│   ├── Bug Fixing & Optimization
│   └── Final QA Validation
│       └── Output: Stable Build
├── Implementation
│   ├── Deployment on College Systems (Programmers)
│   ├── Student Training & Orientation (Project Manager)
│   └── Documentation & Final Review
│       └── Output: Project Complete
└── End
```

WBS DICTIONARY

N.A MBUYAZI

Here's a detailed **WBS (Work Breakdown Structure) Dictionary** for your student communication application project. This dictionary complements the tree structure view by defining each task, responsible team members, duration, and deliverables.

WBS ID	Task Name	Description	Responsible	Duration	Deliverable
1.0	Planning & Research	Initial planning and team setup	Project Manager	5 days	Feasibility Report, Team Structure
1.1	Define Objectives	Clarify the app’s goals and functions	Systems Analyst	1 day	Project Scope Document
1.2	Assemble Team	Recruit PM, Analyst, Designer, 3 Programmers	Project Manager	1 day	Team Roster
1.3	Feasibility & Budget Review	Evaluate viability, confirm budget	Project Manager & Analyst	3 days	Feasibility Study
2.0	Design	Define system requirements and interface design	Designer & Analyst	8 days	Design Specs, Wireframes
2.1	Requirements Specification	Create technical requirement docs	Systems Analyst	3 days	Requirements Document
2.2	UI/UX Design	Design user interface and experience	Designer	3 days	Mockups, UI Flow
2.3	Technical Architecture	Plan software architecture	Whole Team	2 days	Architecture Plan
3.0	Development	Build the app’s core functionalities	Programmers	15 days	Beta Version
3.1	Backend Programming	Code server logic, database, and APIs	Programmers	6 days	Functional Backend
3.2	Frontend Development	Code user interface screens	Designer + Programmers	6 days	Responsive Frontend

3.3	Feature Integration	Merge backend and frontend components	Programmers	3 days	Prototype Version
WBS ID	**Task Name**	**Description**	**Responsible**	**Duration**	**Deliverable**
4.0	Testing	QA process to verify and validate the product	Analyst + Programmers	7 days	QA Reports, Bug Fixes
4.1	Functional Testing	Confirm app features work as expected	Analyst	2 days	Test Case Results
4.2	Bug Fixing & Optimization	Fix issues and improve performance	Programmers	3 days	Updated Build
4.3	Final QA Validation	Final check before deployment	Analyst	2 days	QA Approval
5.0	Implementation	Launch and train users	PM + Programmers	5 days	Live App, Training Docs
5.1	Deployment	Install system on college servers	Programmers	2 days	Deployed App
5.2	Student Training	Educate users on app features	Project Manager	2 days	Orientation Sessions
5.3	Documentation & Handover	Final documentation and sign-off	Whole Team	1 day	Final Report, Handover Sheet

GLOSSARY OF TERMS

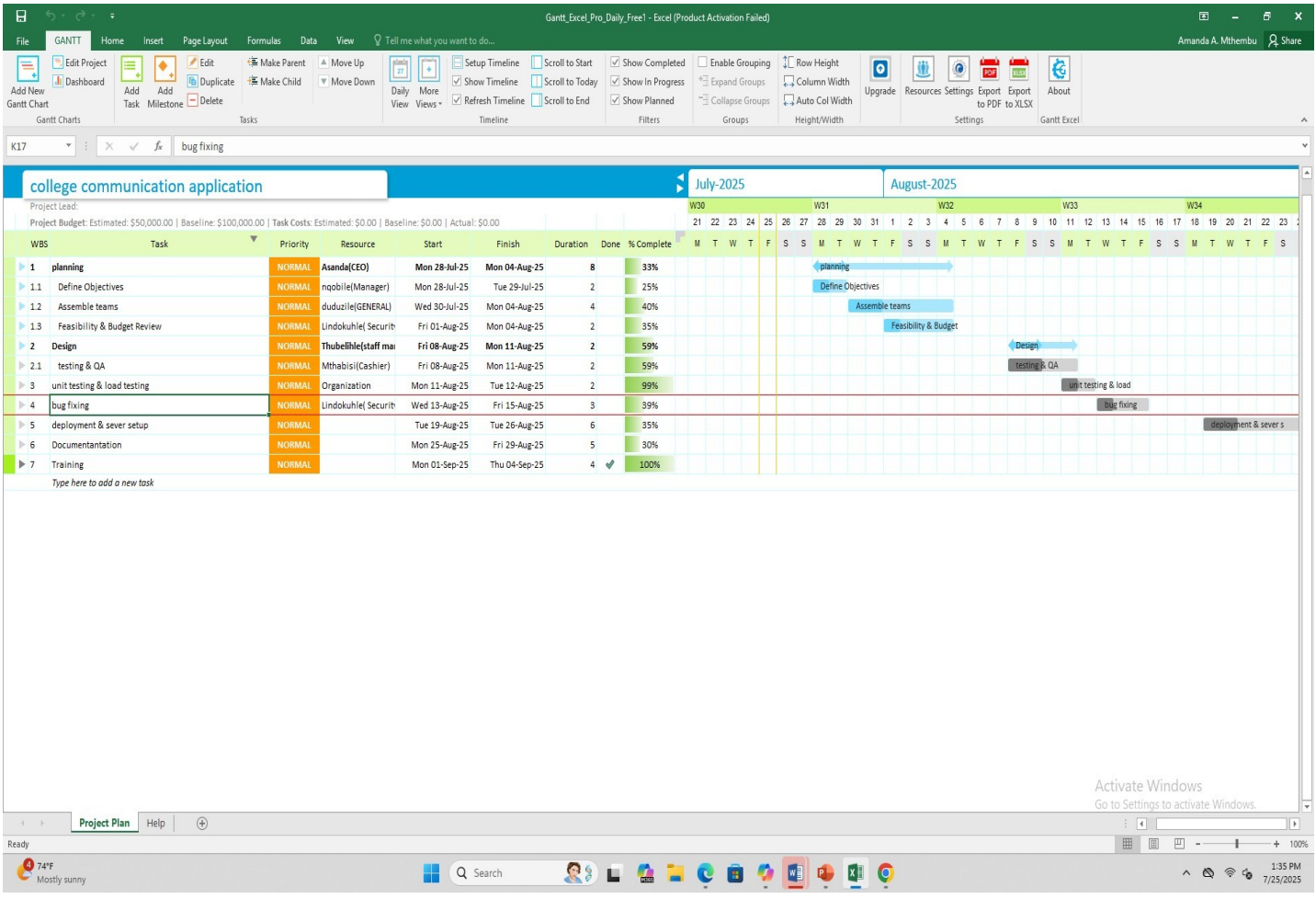
N.A MBUYAZI

Here's a tailored glossary of terms based on your project scenario and the Software Development Life Cycle (SDLC):

Term	Definition
Budget	The total allocated amount of money (R100,000.00) for the entire project.
Term	**Definition**
Project Manager (PM)	The person responsible for planning, executing, and overseeing the project.
Systems Analyst	Evaluates system requirements and determines appropriate solutions.
Designer	Creates the visual layout, user interface, and overall aesthetic of the system.
Programmer	Writes and tests the code that builds the system’s functionality.
SDLC	Software Development Life Cycle – the process used to develop software in stages.
Planning & Research	Stage where goals, needs, feasibility, and requirements are assessed.
Design	Stage focused on creating models, wireframes, and architecture of the system.
Development	Actual coding and creation of the software or system by programmers.
Testing	Ensures the system works correctly, identifying bugs and issues to be fixed.
Implementation	The final stage where the system is deployed and made accessible to users.
Timeline	The schedule or duration to complete the project—40 days in this case.
Team Structure	The roles and responsibilities assigned to team members.
Milestone	Key points in the project where progress can be tracked (e.g., stage completion).
Deliverable	A specific output or product that must be produced by a certain stage.

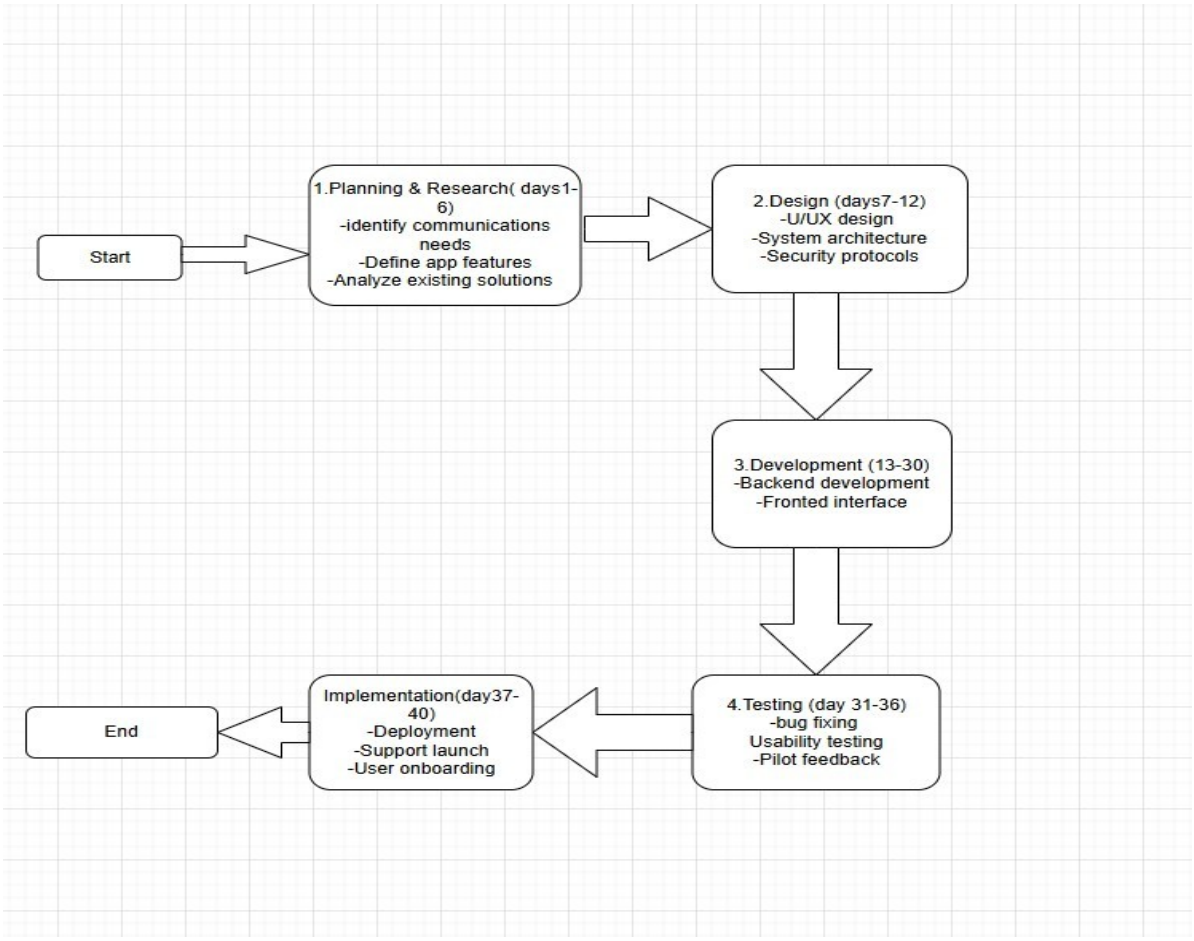
N.A MBUYAZI

GANTT CHART



Subtask 3:

N.A MBUYAZI



Task ID	Task Name	Duration (days)	Predecessors
A	Planning & Research	5	—
B	Design	8	A
C	Development	15	B
D	Testing	7	C
E	Implementation	5	D

Forward Pass (Early Start & Early Finish)

Task	ES	EF	Notes
A	0	5	Starts at day 0
B	5	13	Starts after A finishes
C	13	28	Starts after B finishes
D	28	35	Starts after C finishes
E	35	40	Starts after D finishes

 Backward Pass (Late Finish & Late Start)

Task	LF	LS	Notes
E	40	35	Must finish by day 40
D	35	28	Latest start before E
C	28	13	Latest start before D
B	13	5	Latest start before C
A	5	0	Latest start before B

N.A MBUYAZI